

THE
ONTARIO WATER RESOURCES
COMMISSION
WATER QUALITY SURVEY
of the
SOUTH NATION RIVER

May, 1965

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Report
on a
WATER QUALITY SURVEY

of the

SOUTH NATION RIVER

Division of Sanitary Engineering

May 1965

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WATER QUALITY SURVEY
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SOUTH NATION RIVER

INTRODUCTION

This report is in addendum to the Water Pollution Survey Report of September 30 to October 2, 1963, by this Commission and concerns sampling of the South Nation River during the week of August 10, 1964. For details concerning such matters as watershed data, water uses, and water flow, reference should be made to the initial report.

The purpose of this report is to re-assess and compare the conditions to those previously noted.

SAMPLING

Water samples were collected from the South Nation River and its main tributaries. During this survey, the Payne River and those sections which are in the County of Carleton were also sampled. Samples were submitted to the Ontario Water Resources Commission laboratory for bacterial and sanitary chemical analyses. The results of the samples collected as well as results from the previous survey are listed in the appendix.

During the sampling period, the weather varied from overcast and cool to sunny and warm. The temperature range was approximately 50 degrees to 80 degrees Fahrenheit.

SAMPLE RESULTS

Counts in excess of this Commission's objectives which were noted during the 1963 sampling were confirmed during this

survey at the following sample points:

- N._39.0: This sample point is located downstream of the Village of Casselman. The deterioration of the sanitary quality of the water in this area has been attributed to the discharge of untreated or inadequately treated wastes from the Village of Casselman and industrial wastes from the Casselman Creamery to the South Nation River.
- N.R.E.W._64.0: The gross pollution at this sample point, evident by visual observation as well as the laboratory results is caused by the discharge of industrial wastes to the watercourse by Ault's Creamery at Winchester.
- N.R.E._64.7: The high BOD and coliform count obtained at this sample point have been attributed to the discharge of inadequately treated sanitary wastes to the stream.
- N._47.7: Pollution in this area which is at Crysler is ascribed mainly to industrial wastes discharged from Crysler Milk Products, and to a lesser extent, inadequately treated sanitary wastes from the Police Village of Crysler.
- N.K._72.7: A slightly high coliform count was noted at this point during this survey. The count is considerably less than that obtained during last year's sampling.

In addition, counts in excess of the Commission's objectives were also noted at the following locations:

- N._58.0: This point is located at the dam just east of Chesterville. The excessive coliform count obtained may be attributed to the discharge of inadequately treated wastes within the village.
- N.Y.N._60.4: The pollution in the watercourse at this point downstream of the community of Newington is mainly due to the discharge of inadequately treated wastes from the Kraft Foods Limited Plant.
- N.Y._63.2: It is noted that there was no appreciable flow at this point at the time of sampling and the slightly high coliform count is therefore attributed to the water being stagnant.

SUMMARY

Sampling of the South Nation River Watershed was performed during the week of August 10, 1964. Adverse conditions as noted during the 1963 survey were again noted near the Village

of Casselman, the Village of Winchester and the communities of Crysler and Inkerman. In addition, counts in excess of Commission objectives were noted at the Village of Chesterville, and the communities of Newington and Avonmore.

OWRC objectives for water quality were exceeded downstream of the following milk processing plants:

Casselman Creamery
Ault Milk Products Limited
Crysler Milk Products
Kraft Foods Limited, Newington.

RECOMMENDATIONS

As recommended in the 1963 report the following centres of population and milk processing plants should adopt waste disposal measures so as to protect the quality of the pertinent watercourse in the South Nation River system.

Plantagenet
Casselman
Embrun
St. Onge
Russell
Winchester
Crysler
Williamsburg
Plantagenet Creamery
Greenwood Cheese Factory, Sarsfield
Casselman Creamery
Plantes Cheese Factory, Embrun
Ault Milk Products Limited, Winchester
Plante Bros. (Cambridge No. 5 Cheese Factory,
Cambridge Township)
Crysler Milk Products

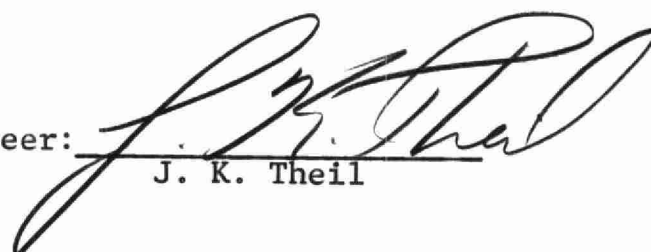
On the basis of the sample results of this survey, the following additional centres of population and milk pro-

cessing plants should adopt improved waste disposal measures.

Chesterville
Newington
Kraft Foods Limited, Newington.

All of which is respectfully submitted,

District Engineer:


J. K. Theil

Approved by:


K. H. Sharpe, Director

Prepared by M. Holy

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APPENDIX (1)

ALL ANALYSES ARE REPORTED IN PPM
UNLESS OTHERWISE INDICATED.

SAMPLE POINT NUMBER	DATE	DESCRIPTION OF SAMPLING POINTS	5-DAY BOD	S O L I D S			TOTAL COLIFORMS PER 100 ML
				TOTAL	SUSP.	DISS.	
N. 2.3	AUG. 13/64	SOUTH NATION RIVER AT HWY. 17 BRIDGE NEAR JESSOPS FALLS	1.5	256	16	240	800
"	OCT. 2/63		1.7	296	4	292	1,300
N. 6.0	AUG. 13/64	SOUTH NATION RIVER OPPOSITE RIVER ROAD WEST SIDE JUST WEST OF JUNCTION WITH HWY. 17	1.7	344	20	324	900
"	OCT. 23/63		3.6	300	8	292	4,900
N. 8.0	AUG. 13/64	SOUTH NATION RIVER AT C.P.R. BRIDGE - PLANTAGENET SPRINGS	1.5	322	9	313	60
"	OCT. 2/63		1.5	310	6	304	900
NC. 15.2	AUG. 13/64	CALEDONIA CREEK AT NORTH PLANTAGENET - ALFRED TWP. LINE	2.6	1828	58	1770	200
"	OCT. 2/63		3.2	648	33	615	500
N. 20.8	AUG. 13/64	SOUTH NATION RIVER AT JOHNSONS FERRY	1.9	336	11	325	20
"	OCT. 2/63		1.8	294	4	290	310
NB. 34.6	AUG. 12/64	BEAR BROOK AT CONCESSION RD. 4, TWP. OF CLARENCE, $\frac{1}{2}$ MILE SOUTH OF BOURGET	1.5	566	9	557	270
"	OCT. 23/63		1.8	368	8	360	13,000
NBN. 40.2	OCT. 2/63	NORTH INDIAN CREEK AT SIDE ROAD JUST EAST OF HAMMOND	1.8	342	19	323	300
NBS. 41.9	AUG. 12/64	SOUTH INDIAN CREEK AT CONCESSION RD. 10, CLARENCE TWP.	---	---	--	---	500
"	OCT. 2/63		1.3	220	15	205	410
NB. 44.0	AUG. 12/64	BEAR BROOK AT CONCESSION RD. 2, CUMBERLAND TOWNSHIP	---	---	--	---	70
"	OCT. 2/63		1.6	360	10	350	380
NBL. 45.9	AUG. 12/64	LEONARD CREEK AT CONCESSION ROAD, CUMBERLAND TWP.	1.1	344	7	337	120
"	OCT. 2/63		2.4	390	4	380	2,700
NB. 54.7	AUG. 12/64	BEAR BROOK AT GLOUCESTER-CUMBERLAND TWP. LINE EAST OF CARLSBAD SPRINGS	---	---	--	---	170
NB. 56.6	AUG. 12/64	BEAR BROOK JUST ABOVE JUNCTION OF EDWARDS CREEK AT DIAGONAL ROAD	---	---	--	---	590
NBE. 57.8	AUG. 12/64	EDWARDS CREEK AT CONCESSION ROAD 8, GLOUCESTER TOWNSHIP	---	----	--	---	180
N. 39.0	AUG. 12/64	SOUTH NATION RIVER AT DAM BELOW CASSELMAN	9.8	418	22	396	40,000
"	OCT. 1/63		4.0	280	--	---	53,000

APPENDIX (2)

ALL ANALYSES ARE REPORTED IN PPM
UNLESS OTHERWISE INDICATED

SAMPLE POINT NUMBER	DATE	DESCRIPTION OF SAMPLING POINTS	5-DAY	S O L I D S			TOTAL COLIFORMS PER 100 ML
			BOD	TOTAL	SUSP.	DISS.	
N. 40.0	AUG. 12/64	SOUTH NATION RIVER AT CONCESSION ROAD 6, CAMBRIDGE TWP. JUST WEST OF CASSELMAN	0.9	332	18	314	300
"	OCT. 1/63		2.1	292	--	---	39,000
NR. 48.6	AUG. 12/64	CASTOR RIVER AT CONCESSION ROAD 8, CAMBRIDGE TWP., EAST OF EMBRUN	1.1	350	10	340	90
"	OCT. 1/63		1.8	458	--	---	9,000
NR. 50.4	AUG. 12/64	CASTOR RIVER JUST EAST AT CONCESSION ROAD 6, RUSSELL TWP.	1.0	322	6	310	310
"	OCT. 1/63		1.3	460	--	---	5,000
NRE. 50.6	AUG. 12/64	EAST CASTOR RIVER JUST WEST OF JUNCTION, AT CONCESSION ROAD 6, RUSSELL TOWNSHIP	1.2	290	3	293	960
"	OCT. 1/63		1.2	494	--	---	390
NRE. 57.4	AUG. 11/64	EAST CASTOR RIVER AT RUSSELL-WINCHESTER TWP. LINE	7.0	1250	44	1206	10
"	OCT. 2/63		6.1	776	91	685	700
NREW. 64.0	AUG. 11/64	WINCHESTER BRANCH OF EAST CASTOR RIVER AT CONCESSION RD. 7, WINCHESTER TOWNSHIP	1300	3764	1052	2112	600,000
"	OCT. 1/63		1220	2860	714	2164	430,000,000
NRE. 63.8	AUG. 11/64	EAST CASTOR RIVER AT CONCESSION ROAD 7, WINCHESTER TWP.	1.6	824	19	805	400
"	OCT. 1/63		1.7	814	--	---	18,000
NRE. 64.7	AUG. 11/64	EAST CASTOR RIVER AT CONCESSION ROAD 6, WINCHESTER TWP., EAST END OF WINCHESTER	180	1682	304	1378	1,700,000
"	OCT. 1/63		18	778	---	---	75,000
NR. 53.2	AUG. 12/64	CASTOR RIVER AT CONCESSION ROAD 3, RUSSELL TWP., 3/4 MILE EAST OF RUSSELL	--	---	---	---	180
"	OCT. 1/63		1.0	448	---	---	5,000,000
NR. 54.5	AUG. 12/64	CASTOR RIVER BESIDE RIVER ROAD, OPPOSITE STREET SOUTH OF RACE TRACK - WEST OF RUSSELL	---	---	---	---	20
"	OCT. 1/63		1.2	456	---	---	130
NRS. 65.2	AUG. 11/64	SOUTH CASTOR RIVER AT HWY. 31, 1 MILE SOUTH OF VERNON	1.6	300	9	291	---
"	OCT. 2/63		1.7	392	21	371	60
NL. 46.6	AUG. 12/64	LITTLE CASTOR RIVER JUST UPSTREAM OF JUNCTION WITH TRIBUTARY, 0.5 MILES EAST OF RUSSELL-CAMBRIDGE TWP. LINE	---	---	--	---	30
"	OCT. 1/63		1.1	464	---	---	14,000

APPENDIX (3)

ALL ANALYSES REPORTED IN PPM
UNLESS OTHERWISE INDICATED.

SAMPLE POINT NUMBER	DATE	DESCRIPTION OF SAMPLING POINTS	5-DAY	S O L I D S			TOTAL COLIFORMS
			BOD	TOTAL	SUSP.	DISS.	PER 100 ML
NL. 47.2	AUG. 12/64	LITTLE CASTOR RIVER AT RUSSELL-CAMBRIDGE TWP. LINE	--	---	---	---	470
"	OCT. 1/63		1.7	466	---	---	330
N. 44.8	AUG. 11/64	SOUTH NATION RIVER JUST WEST OF ST. ALBERT ON CONCESSION ROAD 9, CAMBRIDGE TWP.	3.3	344	2	343	400
"	OCT. 1/63		1.9	318	---	---	480
NY. 47.0	AUG. 11/64	PAYNE RIVER AT CONCESSION ROAD 9, FINCH TOWNSHIP	1.3	314	8	306	800
"	OCT. 1/63		1.7	422	---	---	1,900
NY. 51.6	AUG. 11/64	PAYNE RIVER AT CONCESSION 5, FINCH TOWNSHIP	2.2	360	12	348	170
NY. 54.8	AUG. 11/64	PAYNE RIVER AT HWY. 43	---	---	---	---	70
NYN. 60.4	AUG. 11/64	NEWINGTON CREEK 1 MILE DOWNSTREAM OF NEWINGTON	52	1246	272	924	4,100
NY. 63.2	AUG. 13/64	PAYNE RIVER AT HWY. 43 AT AVONMORE	---	---	---	---	8,000
N. 47.7	AUG. 11/64	SOUTH NATION RIVER AT CRYSLER SIDEROAD, NORTH OF CRYSLER	23	604	40	564	6,500
"	OCT. 1/63		17	332	---	---	180,000
NU. 58.0	AUG. 11/64	DUNBAR CREEK AT HWY. 43 (CONCESSION ROAD 2, WINCHESTER TWP.)	--	---	---	---	150
"	OCT. 1/63		2.0	392	---	---	34
N. 58.0	AUG. 11/64	SOUTH NATION RIVER AT DAM JUST EAST OF CHESTERVILLE	1.7	302	2	300	9,000
"	OCT. 1/63		1.7	278	---	---	1,030
N. 58.6	AUG. 11/64	SOUTH NATION RIVER JUST WEST OF CHESTERVILLE	2.8	312	4	308	150
"	OCT. 1/63		1.4	282	---	---	900
NW. 69.0	AUG. 11/64	WILLIAMSBURG CREEK AT HWY. 31 JUST NORTH OF CONCESSION ROAD 6, WILLIAMSBURG TOWNSHIP	1.8	364	13	351	1,700
"	OCT. 1/63		1.7	378	---	---	9,000
N. 65.1	AUG. 11/64	SOUTH NATION RIVER AT CASS BRIDGE	1.1	280	19	261	---
"	OCT. 1/63		1.4	244	---	---	14
NF. 69.4	AUG. 10/64	BLACK CREEK AT MATILDA - MOUNTAIN TWP. LINE JUST ABOVE JUNCTION	2.4	542	234	308	70
"	SEPT. 30/63		3.0	522	45	477	7,000
NFX. 76.1	AUG. 10/64	SANDY CREEK AT HAINSVILLE SIDEROAD EAST SIDE, IN CONCESSION 6, MATILDA TWP.	---	---	---	---	200
"	SEPT. 30/63						

N O F L O W

APPENDIX (4)

ALL ANALYSES REPORTED IN PPM
UNLESS OTHERWISE INDICATED

<u>SAMPLE POINT NUMBER</u>	<u>DATE</u>	<u>DESCRIPTION OF SAMPLING POINTS</u>	<u>5-DAY</u>	<u>S O L I D S</u>			<u>TOTAL COLIFORMS PER 100 ML</u>
			<u>BOD</u>	<u>TOTAL</u>	<u>SUSP.</u>	<u>DISS.</u>	
NF. 75.5	AUG. 10/64	BLACK CREEK AT CONCESSION RD. 5 - MATILDA TOWNSHIP	---	---	---	---	200
"	SEPT. 30/63		2.2	328	30	298	180
NK. 72.7	AUG. 10/64	INKERMAN CREEK AT INKERMAN SIDEROAD, 1 MILE SOUTH OF INKERMAN	---	---	---	---	3,400
"	SEPT. 30/63		3.4	416	112	304	90,000
N. 74.8	AUG. 10/64	SOUTH NATION RIVER BESIDE SOUTH MOUNTAIN RD. - 3/4 MILE EAST	1.5	278	15	263	400
"	SEPT. 30/63	OF SOUTH MOUNTAIN	2.2	264	9	255	170
N. 88.2	AUG. 10/64	SOUTH NATION RIVER BELOW DAM AT SPENCERVILLE AND BELOW HWY. 16	1.3	296	1	295	200
"	SEPT. 30/63		1.7	296	2	294	600
N. 96.0	AUG. 10/64	SOUTH NATION RIVER AT CHARLEVILLE	1.2	298	2	296	70
"	SEPT. 30/63		---	---	---	---	32

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